

KARPOV, S.P.; POLUKHIN, P.I.

Determining the elastic deformation of tools in pressure metalworking.
Report no.1. Izv. vys. ucheb. zav.; chern. met. 6 no.5:90-96
'63. (MIRA 16:7)

1. Moskovskiy institut stali splavov.
(Rolls (Iron mills)) (Dies (Metalworking))
(Deformations (Mechanics)).

POLUKHIN, P.I.; VORONTSOV, V.K.; RUTMAN, G.G.

Investigating strained and deformed conditions during rolling.

Report no.1. Izv.vys.ucheb.zav.; chern.met. 6 no.1:58-66 '63.

(MIRA 16:2)

1. Moskovskiy institut stali i splavov.

(Rolling (Metalwork)) (Deformations (Mechanics))

POLUKHIN, P.I.; ZHELEZNOV, Yu.D.; POLUKHIN, V.P.; RADYUKEVICH, L.V.;
PRATUSEVICH, I.I.; NIKOLAYEV, V.A.

Effect of technological factors on roll grooving for thin sheet
mills. Stal' 23 no.2:146-152 F '63. (MIRA 16:2)

1. Moskovskiy institut stali i splavov i Magnitogorskiy
metallurgicheskiy kombinat.
(Rolls (Iron mills))

POLUKHIN, P. I., prof., doktor tekhn. nauk; VORONTSOV, V. K., inzh.

Use of optically active coatings in the study of processes
occurring during the press-working of metals. Sbor. Inst. stali
i splav. no.40:277-292 '62. (MIRA 16:1)

(Deformations(Mechanics)—Testing)
(Optical films)

POLUKHIN, P.I.; KARPOV, S.P.; RYMOV, V.A.

Longitudinal stresses and deformations in metal during
continuous roll forming. Izv. vys. ucheb. zav.; chern. met.
6 no.3:77-84 '63. (MIRA 16:5)

1. Moskovskiy institut stali i splavov.
(Sheet-metalwork) (Strains and stresses)

POLUKHIN, P.I.; GUN, G.Ya.; MASTEROV, V.A.

Calculated equation of the process of rolling with increase in width
applying the law of plastic friction τ_{py} .p . Izv. vys. ucheb. zav.;
chern. met. 5 no.9:116-124 '62. (MIRA 15:10)

1. Moskovskiy institut stali i splavov i Leningradskiy mekhanicheskiy
institut.

(Rolling (Metalwork))

POLUKHIN, P. I., prof., doktor tekhn. nauk; ASTAKHOV, I. G., kand.
tekhn. nauk

Calibration of I-beams. Sbor. Inst. stali i splav. no. 40:
25-43 '62. (MIRA 16:1)

(Rolling(Metalwork))

POLUKHIN, P. I., prof., doktor tekhn. nauk; OSADCHIY, V. Ya., kand.
tekhn. nauk; GOLUBCHIK, R. M., kand. tekhn. nauk; RYMOV, V. A.,
inzh.; KIRVALIDZE, N. S., inzh.; YESAULOV, A. T., inzh.;
GLADKIKH, D. V., inzh.; MAVRODIY, P. D., inzh.

Improving the grooving of roughing rolls of unit 400 plug
rolling mills. Sbor. Inst. stali i splav. no.40:319-326 '62.
(MIRA 16:1)

1. Moskovskiy institut stali i Yuzhnotrubnyy zavod.

(Rolls(Iron mills)) (Pipe mills)

8/133/63/000/002/007/014
A054/A126

AUTHORS: Polukhin, P.I., Zheleznov, Yu.D., Polukhin, V.P., Radyukevich, L.V.
Pratusevich, I.I., Nikolayev, V.A.

TITLE: The effect of technological factors on the profile section of thin strip mill rolls

PERIODICAL: Stal', no. 13, 1963, 146 - 152

TEXT: This problem has been studied at the Magnitogorskiy metallurgicheskii kombinat (Magnitogorsk Metallurgical Combine), on continuous 1,200 mm four-high cold rolling mill rolls and 1,450 mm hot rolling mill rolls, in 1961 - 1962. The article is a summarizing report on the theoretical and experimental research relating to the changes of the profile section of work rolls and backing rolls due to heat effects (convexity at the center of the roll surface), to wear and tear of the rolls, etc. Measures to prevent these phenomena involve the balancing of heat effects by modifying the intensity of cooling accordingly, preferably with an automatic regulation, by means of a pickup signaling the distribution of expansion over the width of the strip and ensuring that cooling at the edge parts is more intense than the heat release. For backing rolls this can be obtained

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The effect of technological factors on the

S/133/63/000/002/007/014
A054/A126

by giving them a special profile section (clipping or grooving at the edges); moreover, by giving the roll barrel a surface of varying wear resistance, adjusted to the forces applied to it (by hard-surfacing with hard alloys). The measures recommended are covered by Author's Certificate No. 142.269, 1961 (Ref. 5) and No. 151976, 1962 (Ref. 3). There are 7 figures.

ASSOCIATIONS: Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys); Magnitogorskiy metallurgicheskiy kombinat (Magnitogorsk Metallurgical Combine)

Card 2/2

ACCESSION NR. AP4022896

S/0148/64/000/003/0081/0086

AUTHOR: Markovskiy, V. Yu.; Polukhin, P. I.; Shaskol'skaya, M. P.

TITLE: Determination of the photoelasticity of a fine-grained annealed silver chloride constant subjected to elastic and plastic deformation

SOURCE: IVUZ. Chernaya metallurgiya, no. 3, 1964, 81-86

TOPIC TAGS: Photoelasticity, AgCl, Mo, bending test, tensile test, residual stress, elastic deformation, plastic deformation, AgCl deformation

ABSTRACT: The authors investigated the photoelastic properties of fine-grained polycrystalline AgCl subjected to plastic and elastic deformation after annealing. Single crystals with a diameter of 31 mm and a height of 120 mm were grown in Mo glass crucibles in a vertical tubular electric furnace with a rated temperature gradient. The grown crystal was cut into 40-45 mm cylinders and reduced to 2 to 3 mm-thick plates that were annealed for recrystallization. With a 95% deformation rate 10-hour holding was found to be optimal. Maximum grain size was 0.05 mm and no residual stresses were detected in the specimens. Bending - tensile tests yielded the relationship between the values of the optical difference in

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POLUKHIN, P.I.; MASTEROV, V.A.; GUN, G.Ya.

Effect of external parts on the widening and specific pressures
during longitudinal rolling and upsetting. Izv. vys. ucheb.
zav.; chern. met. 5 no.8:57-61 '62. (MIRA 15:9)

1. Moskovskiy institut stalii splyav i Leningradskiy mekhanicheskii
institut.

(Rolling (Metalwork)) (Deformations (Mechanics))

L 2999-66 EWT(m)/EWP(t)/EWP(b) JD

ACCESSION NR: AP5013321

UR/0148/65/000/005/0057/0064
669.1:621.731

53
52
B

AUTHOR: Polukhin, P. I.; Gun, G. Ya.; Polukhin, V. P.; Prudkovskiy, B. A.;
Korolev, V. M.

TITLE: Adaptation of the electrohydrodynamic analogue method to the theory of
metal processing under pressure

SOURCE: IVUZ. Chernaya metallurgiya, no. 5, 1965, 57-64

TOPIC TAGS: plastic flow, mathematic model, metallurgic process, pressure casting

ABSTRACT: The application of the theory of complex variables to plastic flow during metal processing was studied by the mathematical modeling of potential fields. In particular, the method of electrohydrodynamic analogues was found to be directly applicable to metal processing theory. Three specific cases are considered: the general theory of plane-parallel plastic flow, the drawing of profiles of intricate form, and the pressing of profiles of intricate form. Plastic flow equations are given for plane-parallel flow in terms of complex variables, utilizing a mathematically postulated Q-plane, which allowed approximate calculations to be made for the energy and strength parameters of the process. The flow pattern is presented,

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L 2999-66

ACCESSION NR: AP5013321

along with a parametric plot of the Q-plane. For the case of the drawing of intricate shapes, a similar approach was given. A deformation function $\phi = \phi(x, y)$ is used to calibrate a draw plate; this function is determined by solving a Laplacian in x and y for specified boundary conditions. Results are given for $1-\phi$, calculated at the center of the draw plate, as a function of degree of deformation. For the final case, pressing of profiles of intricate shape, a further innovation is made in the general mathematical treatment, by using

$$\vec{v} = v_x + i v_y$$

to describe the velocity field. A complex potential is calculated, and the flow behavior of a thin walled pressing is described. Flow lines are sketched and shown to be equivalent to those obtained during metal processing. Orig. art. has: 6 figures.

ASSOCIATION: Moskovskiy institut stal' i splavov (Moscow Institute of Steel and Alloys)

SUBMITTED: 22Jan65

ENCL: 00

SUB CODE: MM, ME

NO REF SOV: 009

OTHER: 000

Card 2/2 *nd*

L 1704-66 EWP(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) LIP(c) JD/HW
 ACCESSION NR: AP5020978 UR/0148/65/000/008/0073/0079

AUTHOR: Polukhin, P. I.; Arkhangel'skiy, A. V.; Knyshev, Yu. V.; Masterov, V. A.

TITLE: Experimental study of the mechanics of rolling bimetal

SOURCE: IVUZ. Chernaya metallurgiya, no. 8, 1965, 73-79

TOPIC TAGS: bimetal, metal rolling, sheet metal, aluminum, copper, metal cladding

ABSTRACT: This study in the rolling of bimetal was conducted to provide information for selection of proper thicknesses of the initial metal sheets to give the required relative thickness in the final bimetal. The effect of the initial ratio of sheet thicknesses and the effect of total thickness on the strain and force parameters of the rolling process were examined using bimetal of aluminum A000 and electrolytic copper of equal thickness to make up sandwiches 2, 3, 5, 10, 15 and 20 mm thick, and using sandwiches in which the aluminum: copper thickness varied from 0.13 to 6.70. Deformation irregularities are reduced as the total thickness is reduced to 5 mm. The anomalous increase in irregularities below

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L 1704-66

ACCESSION NR: AP5020978

this thickness was attributed to the greater deformation of aluminum in comparison to copper as sheet thickness is reduced. The pressure of the rolls is greater on copper than on aluminum of equivalent thickness, and specific pressures are minimum on sandwiches about 10 mm thick. As the thickness of the copper sheet in a 10 mm sandwich is decreased its deformation is reduced, and when the aluminum: copper ratio reaches 5.2-6.7 the sheets do not laminate. The distribution of torque between the rolls for bimetal over 5 mm thick was examined, but further study is required for thinner bimetals. The forward slip on aluminum is always greater than on copper when rolling bimetal, and as the initial thickness is increased from 2 to 13 mm the slip on copper is reduced to zero. Measurements of the contact arc between the metal sheets and the rolls showed that its length is determined by sandwich thickness, the amount of reduction per pass, and the ratio of the mechanical properties of the sheets and their thicknesses. Because of the complexity of the effects associated with the deformation of bimetal, further study of the specific pressure and of friction force diagrams is required. Orig. art. has: 5 figures

Card 2/3

L 1704-66

ACCESSION NR: AP5020978

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute for Steels
and Alloys) *44,55*

SUBMITTED: 29Apr65

ENCL: 00

SUB CODE: MM

NR REF SOV: 002

OTHER: 000

mlb
Card 3/3

L 63977-65 EMP(k)/EWA(c)/EAT(d)/EAT(m)/EMP(h)/EMP(b)/EWA(d)/EAT(l)/EMP(v)/EAT(t)

ACCESSION NR: AP5013324 JI/HW

UR/0148/65/000/005/0085/0089
621.771.23.

AUTHOR: Polukhin, P. I.; Kudr yavtsev, A. S.; Bets, N. G.

TITLE: The effect of roll parameters and strip width on the rigidity of the roll system in plate mills. Report 2

SOURCE: IVUZ. Chernaya metallurgiya, no. 5, 1965, 85-89

TOPIC TAGS: rolling mill, sheet metal, elastic deformation

ABSTRACT: Variations in cross sectional thickness and profile of a strip during rolling on a four-high mill with cylindrical rolls is determined by the shape of the working rolls. The profile of these rolls is made up of the camber in the axis of the backing-up roll, the nonuniformity in convergence between the axes of the working and backing-up rolls, and nonuniformity in flattening of the upper half of the working roll along the roll body. It was found that the form of the stress-strain diagram for the roll convergence depends on both the width of the strip and the roll parameters (see figs. 1-4 of the Enclosure). The greatest flattening is observed toward the middle of the roll body, diminishing toward the edges. The mag-

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L 63977-65

ACCESSION NR: AP5013324

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nitude of deformations in the axis of the working roll (variations in strip thickness) is determined by the camber of the backing-up roll and by the nonuniformity in flattening, which depend on both strip and roll parameters. The effect which combined elastic deformation in the roll system of a four-high mill has on the variations in cross sectional strip thickness can be reduced only when both the factors pertaining to roll parameters (ratio of working to backing-up roll diameters, and ratio of width to diameter of the backing-up roll) and the strip width (B/L) are taken into account. The results obtained by the authors from modeling of the elastic interaction for the rolls of various stands may be used for analysis of the effect which the length of the body and the diameters of working and backing-up rolls have on the form and magnitude of combined elastic deformations in the roll system, and for selecting optimum roll parameters in mills which are being planned and redesigned. These results also give a qualitative and quantitative evaluation of the effect which elastic deformations in the rolls in various stands in the majority of Soviet and foreign plate mills have on the variations in strip thickness and profile when strips of various widths are rolled. Orig. art. has: 7 figures.

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L 63977-65

ACCESSION NR: AP5013324

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys) 3

SUBMITTED: 26Dec64

ENCL: 04

SUB CODE: MM, IE

NO REF SOV: 003

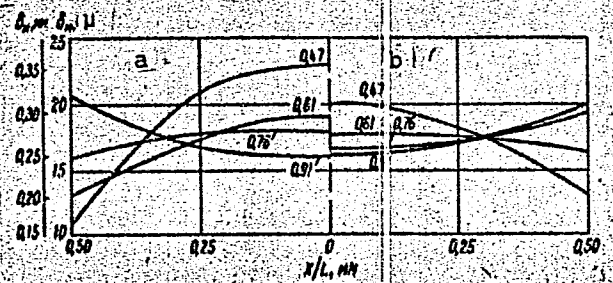
OTHER: 000

Card 3/7

L 63977-65

ACCESSION NR: AP5013324

ENCLOSURE: 01



L 63977-65

ACCESSION NR: AP5013324

ENCLOSURE: 02

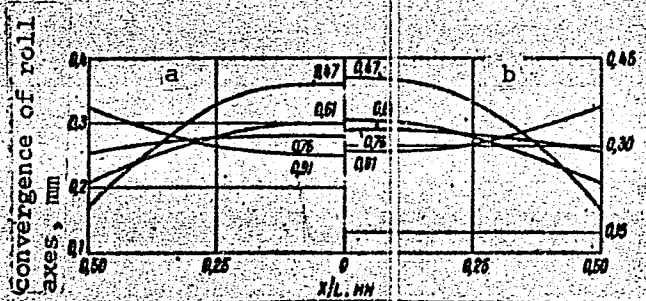


Fig. 2. Stress-strain diagrams for convergence of axes of the working and backing-up rolls in 1680 (a) and 1450 (b) mills. Figures near the curves refer to the B/L ratio.

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L 61977-65

ACCESSION NR: AP5013324

ENCLOSURE: 03

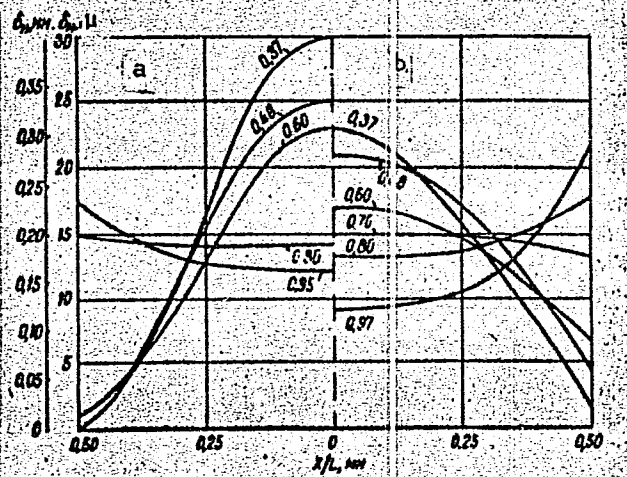


Fig. 3. Stress-strain diagrams for convergence of axes in models of the working and backing-up rolls in a system with $L/D_{b.u.} = 1.79$ and rolls in the stands of a 2500 cold rolling mill and in the finish stands of a 2500 hot rolling mill: a-- $L/D_{b.u.} = 1.79$; $D_{wor.}/D_{b.u.} = 0.36$; b-- $L/D_{b.u.} = 1.79$; $D_{wor.}/D_{b.u.} = 0.50$. Figures near the curves refer to the B/L ratio.

Card 6/7

L 63977-65

ACCESSION NR: AP5013824

ENCLOSURE: 04

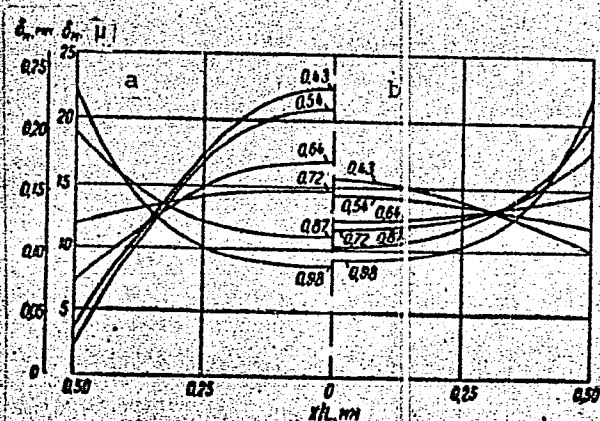


Fig. 4. Stress-strain diagrams for convergence of axes in models of the backing-up and working rolls in a system with $L/D_{b.u.} = 2.00$ and the rolls of various stands in the 2800 mill: a-- $L/D_{b.u.} = 2.0$; $D_{wor.}/D_{b.u.} = 0.30$; b-- $L/D_{b.u.} = 2.0$; $D_{wor.}/D_{b.u.} = 0.64$. Figures near the curves refer to the B/L ratio.

rolling

Card

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POLUKHIN, P.I.; VORONTSCV, V.K.; Primal uchastiye Pravdin, A. V., inzh.

Investigating the stress condition in rolling high ingots. Izv.
vys. ucheb. zav.; chern. met. 5 no.8:79-86 '62. (MIRA 15:9)

1. Moskovskiy institut stali i splavov.
(Rolling (Metalwork)) (Strains and stresses)

POLUKHIN, P.I.; VORONTSOV, V.K.

Determining the components of stressed and deformed conditions
in the plastic range by optical test data. Izv.vys.ucheb.zav.;
chern.met. 5 no.11:80-89 '62. (MIRA 15:12)

1. Moskovskiy institut stali i splavov.
(Deformations (Mechanics)—Testing)
(Optical measurements)

I 36295-65 EWT(d)/EWT(m)/EWA(d)/EWT(g)/EWP(k)/EWP(h)/EWP(b)/EWP(l)/
EWA(c) Pf-4 JD/RW

ACCESSION NR: AP4047336

S/0148/64/000/010/0070/0074

AUTHOR: Gun, G. Ya.; Polukhin, P. I.; Prudkovskiy, B. A.; Polukhin, V. P.

TITLE: Certain problems pertaining to the theory of extrusion in unsymmetrical and multihole dies

SOURCE: IVUZ. Chernaya metallurgiya, no. 10, 1964, 70-74

TOPIC TAGS: velocity field, plastic flow, interface, deformation, multihole die, unsymmetrical die, extrusion, extrusion die

ABSTRACT: In plotting a flat turbulent-free field of velocities determined by an analytical function, the complex potential $\omega(z)$, the physical region D of the plastic flow and region E of the complex potential are mapped conformally in the upper half-plane. Assuming that region D is a generalized polygon A with apexes A_k and with angles α_k ($0 \leq \alpha_k \leq 2$) the auxiliary half plane $\text{Im } \xi > 0$ is introduced and regions D and E plotted on it. The pressure efficiency is written as the sum of pressure efficiencies in the first and the second hole and the shear force on the flow interface is added. The flow interface in the first and second hole

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L 36295-65

ACCESSION NR: AP4047336

may be derived from the minimum forming efficiency which, in turn, determines the relationship of outflow from the first and second holes. In polygonal regions, the flow in multi-hole dies is determined by using the method of discontinuous functions. Let plastic flow occur in an nonsymmetrical die in region D, having assigned parameters H , h , C_1 and C_2 . The flow in region D may be considered as a flow in two simpler regions I and II, attached along current line A^-A^+ which is the flow interface. The flow interface contains section A_8A_4 where discontinuous velocities occur along that interface. The region of intensive plastic deformations is bounded by equipotential surfaces that pass through angle points and by a surface determined by angle ψ . Let us limit the zones of intensive plastic deformations in regions I and II corresponding to surfaces $A_1A_2A_3A_8$ and $A_4A_5A_6A_7$. The discontinuity in velocities will be considered only for section A_8A_4 of the flow interface. The mean specific pressure is written.

$$\frac{p}{2\tau_s} = \frac{\dot{A}}{2\tau_s \sqrt{H_1 + H_2}} = \frac{H_1}{H_1 + H_2} \left[\left(1 + \frac{1}{\psi_1} \right) \cdot \ln \frac{H_1}{h_1} + 0.88\psi_1 \right] + \frac{H_2}{H_1 + H_2} \left(\ln \frac{H_2}{h_2} + 0.88\psi_2 \right). \quad (1)$$

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ACCESSION NR: AP4047336

Functional (1) stands in linear relationship with ψ_2 . Its minimum value corresponds to the value of ψ_2^0 at which equipotential surface A_6A_7 becomes equipotential surface B_3B_2 forming a common area of deformation. Orig. art. has: 3 figures and 18 equations.

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Steel and Alloy Institute)

SUBMITTED: 21Mar64

ENCL: 02

SUB CODE: MM

NR REF SOV: 004

OTHER: 000

Card 3/5

S/148/63/000/001/006/019
E193/E383

AUTHORS: Polukhin, P.I., Vorontsov, V.K. and Rutman, G.G.

TITLE: Investigation of the stress and strain state in rolling. Part I

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no. 1, 1963, 58 - 66

TEXT: The object of the present investigation was to study the distribution of strain and stress in the actual deflection region as a function of the geometric parameters of the rolling process. Strip specimens, 10-73 mm thick, were investigated on a laboratory, two-high stand with rolls 139 and 185 mm in diameter, the absolute reduction varying between 0.5 and 6.5 mm so that the ℓ_d/h_{sr} ratio covered ranged from 0.12 - 1.2 (ℓ_d is the length of the geometrical deformation zone, h_{sr} being the thickness of the strip). Stresses and strains were determined by using optically sensitive coatings and inserts, tensometric measurements and the coordinate-network method. The results were

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Investigation of the stress

S/148/63/000/001/006/019

E193/E383

used to plot the isoclinic curves ($\Theta = \text{const}$, where Θ is the angle of deflection and one of the principal strains) and curves representing $\epsilon_1 - \epsilon_2 = \text{const}$. The results of analysis of these curves can be summarized as follows: 1) rolling in the ℓ_d/h_{sr} range studied is characterized by nonuniform strain and stress distribution, this effect being particularly marked in the material entering the rolls; 2) as the ℓ_d/h_{sr} ratio increases, the degree of nonuniformity of strains normal to the direction of rolling in the metal leaving the rolls decreases and the character of flow of the metal entering the rolls changes; 3) three types of the stress-strain state can be distinguished, depending on the value of ℓ_d/h_{sr} : a) a most uniform distribution of stress and strain across the thickness of the strip in a large part of the geometrical deformation zone is attained at $\ell_d/h_{sr} = 1.2$, some degree of nonuniformity being observed in metal entering the rolls; the rolling process under these conditions is characterized by triaxial compression in the entire actual deformation zone with the exception of the region adjacent to the plane in the pre-deformation zone, which is not under external

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S/148/63/000/001/006/019

E195/E383

Investigation of the stress

load; b) at $0.3 < \ell_d/h_{sr} < 0.8$ deformation becomes less uniform; the state of triaxial compression does not extend to the central layer of the strip in the geometrical deformation zone and large tensile stresses are set up in the pre-deformation zone which - in the case of metal with a low margin of plasticity - can lead to fracture; c) at $\ell_d/h_{sr} < 0.3$, the metal is compressed throughout its entire thickness but there is a great difference between the strength in the surface and central layers of the strip; the stress state is characterized by high tensile stresses along the axis of symmetry, both in the pre-deformation region and in the geometrical deformation zone; a limited increase in the degree of uniformity of deformation across the thickness of the strip can be brought about by further decrease in ℓ_d/h_{sr} ; 4) the strain-stress state across the width of the strip is both nonuniform and heterogeneous; 5) the length ℓ of the actual deformation zone depends on the value of ℓ_d/h_{sr} , the ℓ_a/ℓ_d ratio increasing from 1.5-2 at $\ell_d/h_{sr} \approx 1$ to 3-3.5 at $\ell_d/h_{sr} < 0.3$.

There are 3 figures.

Card 3/4

Investigation of the stress S/148/63/000/001/006/019
E193/E383

ASSOCIATION: Moskovskiy institut stali i splavov
(Moscow Institute of Steel and Alloys)

SUBMITTED: August 2, 1962

Card 4/4

POLUKHIN, P.I.; MASTEROV, V.A.; GUN, G.Ya.

Theoretical investigation of the longitudinal rolling process
with widening of the smooth barrel. Izv. vys. ucheb. zav.;
chern. ~~met. 5:99-107~~ '62. (MIRA 15:6)

1. Moskovskiy institut stali.
(Rolling (Metalwork))

POLUKHIN, P.I.; POLUKHIN, V.P.; ZHELEZNOV, Yu.D.

Comparative analysis of elastic compression of rolls on a four-high mill and cylinders according to Gerts. Izv. vys. ucheb. zav.; chern. met. 5 no.5:115-119 '62. (MIRA 15:6)

1. Moskovskiy institut stali.
 (Rolls (Iron mills))
 (Deformations (Mechanics))

POLUKHIN, P.I.; GUN, G.Ya.; MASTEROV, V.A.; KNYSHV, Yu.V.

Calculating forces and deformations in the reduction of laminated
solids. Izv.vys.ucheb.zav.; chern.met. 5 no.6:71-75 '62.
(MIRA 15:7)

1. Moskovskiy institut stali.
(Laminated metals) (Forging)

3-58-3-32/32

AUTHOR: Polukhin, P.I., Professor, Doctor of Technical Sciences

TITLE: On the Training of Expert Metallurgists in the USA (O podgotovke spetsialistov metallurgov v SShA)

PERIODICAL: Vestnik Vysshey Shkoly, 1958, Nr 3, pp 91 - 96 (USSR)

ABSTRACT: The article contains general information on the training of Bachelors, Masters, and Doctors of science in metallurgy in the USA. There are 3 tables, 1 diagram and 1 American reference .

AVAILABLE: Library of Congress

Card 1/1

POLUKHIN, P.I.; OSADCHIY, V.Ya.; GOLUBCHIK, R.M.; ZEL'DOVICH, L.S.

Determination of axial forces acting on a piercing mill mandrel.
Izv.vys.ucheb.zav.; chern.met. 4 no.5:102-108 '61. (MIRA 14:6)

1. Moskovskiy institut stali.
(Rolling mills—Equipment and supplies)

POLUKHIN, P.I.; OSADCHIY, V.Ya.; GOLUBCHIK, R.M.; KIRVALIDZE, N.S.

Experimental investigation of the tube piercing process. Izv.
vys. ucheb. zav.; Chern. met. 4 no.7:88-96 '61.

(MIRA 14:8)

1. Moskovskiy institut stali i Yuzhnotrubnyy zavod.
(Pipe mills)

POLUKHIN, P.I.; ZHELEZNOV, Yu.D.; POLUKHIN, V.P.

Durability of rolls on mills for the continuous cold rolling of
thin sheet. Izv. vys. ucheb. zav.; chern. met. 4 no.7:121-
128 '61. (MIRA 14:8)

1. Moskovskiy institut stali.
(Rolls(Iron mills))

POLUKHIN, P.I.; PEDOS, I.F.; RADYUKEVICH, L.V.; ZHELEZNOV, Yu.D.;
POLUKHIN, V.P.

Increasing the efficiency of roll performance in the cold rolling
of thin sheet. Stal' 21 no.10:916-920 0 '61. (MIRA 14:10)
(Rolls (Iron mills))

SOV/3-59-3-4/48

22(1)

AUTHOR: Polukhin, P.I., Doctor of Technical Sciences, Professor, Member of Board

TITLE: More Good Textbooks (Bol'she khoroshikh uchebnikov)

PERIODICAL: Vestnik vyssney shkoly, 1959, Nr 3, pp 12-15 (USSR)

ABSTRACT: The time is not far distant when the 40 and later the 30-35 hour working week will be realized for the working people of the USSR. This will give them greater possibilities for broadening their education and satisfying their intellectual needs. The system of higher evening and correspondence education will enable every citizen to study without discontinuing productive work. In the next few years, higher evening and correspondence education will therefore greatly develop, and the independent study of various subjects by textbooks and training aids assume decisive significance. This implies that the textbooks published must be of a high scientific level and available in sufficient numbers. Recently

Card 1/3

More Good Textbooks

SOV/3-59-3-4/48

the output of training literature has been considerably increased. During 1955 to 1957, 1,020 titles of textbooks and training aids, comprising 22,073,000 copies, were published for vuzes. The author lists several scientific works written by Academician B.S. Stechkin, S.D. Gvozdover, V.P. Yelyutin, A.S. Kompaneyets, L.G. Loytsyanskiy, Z.A. Rogovin, N.M. Glagolev, M.D. Kuchkin, N.A. Spitsyn, A.S. Smirnov, A.I. Shirkovskiy, A.L. Gorelik, N.N. Ivashchenko, A.N. Lebedev, A.S. Davydov, A.V. Fremke, and V.M. Shlyandin. In 1959, it is planned to issue new textbooks composed by V.V. Molyarov, I.P. Losev, D.V. Vasil'yev, G.S. Filippov, V.I. Gaponov and S.O. Dobrogurskiy. He indicates the number of textbooks and manuals to be published on different subjects within the next 3 years, and deals with the shortcomings in publishing training literature, which still exist in spite of improvements in recent years. It is pointed out that the most needed textbooks are not being printed in the first place, that the present order of examining manuscripts delays their delivery to the printer, and

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More Good Textbooks

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that developing the issue of training literature within the vuzes may be of considerable importance. In this connection, the author recommends the practice of some vuzes who reproduce and issue good lecture summaries recorded by students. He is dissatisfied with the present system of determining the size of editions, and urges that a large publishing office of the USSR Ministry of Higher Education be established for the issue of textbooks, training and methodological aids, lecture courses, reference literature, scientific works and vuz journals.

ASSOCIATION: Kollegiya ministerstva vysshego obrazovaniya SSSR
(Board of the USSR Ministry of Higher Education)

Card 3/3

S/148/61/000/001/005/015
A161/A133

AUTHORS: Polukhin, P. I.; Osadchiy, V. Ya., and Gclubchik, R. M.
TITLE: The use of technological lubricants in finish rolling of tubes
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 1, 1961, 100 - 104

TEXT: Experiments with different lubricants have been carried out on two finish mills at the Yuzhnostrubnyy Plant. The reason for the experiments was the lack of data in literature on lubricants for helical rolling. NaCl is sometimes used in hot pressure working, but the chlorine liberation in the process is noxious, causes gas corrosion, and NaCl is relatively expensive. The purpose was to find a material with the same good lubricating properties as NaCl and without its drawbacks. The test tubes were thin-walled of small diameter. The following materials were tried: commercial NaCl; furnace scale; air scale; graphite; 50% furnace scale + 50% graphite; 50% air scale + 50% graphite; 50% furnace scale + 50% NaCl; 50% air scale + 50% NaCl; 50% NaCl + 50% graphite; 40% air scale + 40% graphite + 20% NaCl; 65% air scale + 35% graphite; 60% air scale + 20% gra-

Card 1/3

S/148/61/000/001/005/015

A161/A133

The use of technological lubricants in...

phite % 20% NaCl. (NaCl was not ground; scale was ground and screened through a 1 mm mesh screen, graphite was reduced to dust.). About 80 - 100 g of lubricant was thrown into the pipes during their motion on a gravity grating from the automatic rolling mill to the receiving chute of the finish rolling mill. The effect of lubricants was studied by measuring the metal pressure on the rolls by carbon dynamometers in special holders placed under the forcing screws; the current was registered by a recording ammeter connected to a shunt on the motor feeder. Other parameters determined were: the power consumption; the rolls velocity; the rolling time for 9-meter tubes; the axial sliding factor. The rolling speed increase was higher on alloy steel tubes than on carbon steel; the solid scale layer on tubes from stainless steel seemed to neutralize the effect of lubricants. Conclusions: 1) Lubricants are necessary to reduce the braking friction on the mandrel in axial direction and to increase the mill output. 2) NaCl ensures a 10 to 40% higher rolling speed for tubes of different size and steel grades; the effect is higher on alloyed steel. 3) The best of the compounds tested is a mixture of NaCl with air scale. The effect of other lubricants is also positive. 4) Lubricants reduce the power consumption,

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The use of technological lubricants in...

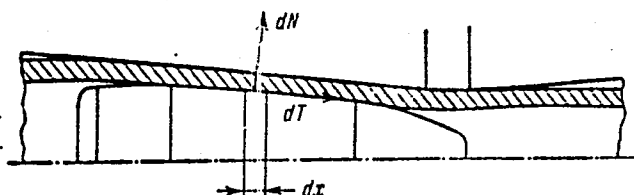
S/148/61/000/001/005/015
A161/A133

improve the rolling process and reduce the wear of mandrels. There is 1 figure, 3 tables and 3 Soviet-bloc references.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: March 3, 1960

Fig. Axial forces on the contact surface between metal and mandrel



Card 3/3

POLUKHIN, P.I.; GOLUBCHIK, R.M.; OSADCHIY, V.Ya.

Secondary conditions of gripping during the piercing process. Izv.
vys.ucheb.zav.; Chern.mst. 4 no.6:60-66 '61. (MIRA 14:6)

1. Moskovskiy institut stali.
(Rolling (Metalwork)) (Pipe mills)

1.1300

28066
S/148/61/000/007/005/012
E193/E380

AUTHORS: Polukhin, P.I., Zheleznov, Yu.D. and Polukhin, V.P.

TITLE: Ways of increasing the operating efficiency of tandem thin-sheet rolling mills

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no. 7, 1961, pp. 101 - 104

TEXT: The most difficult problem in continuous thin-sheet rolling is to ensure uniform thickness of the product across its width. The conventional method of cambering is not quite satisfactory since in the case of a particular set of rolls it is effective only within a very narrow range of roll forces. The object of the present paper was to discuss alternative means of solving this problem. The authors refer to their earlier study (Ref. 1 - this journal, 1960, No. 11) of stresses and strains in a 4-high mill by an optical method. It was found then that the deformation of the work rolls was a sum total of bending of the back-up roll and flattening of both work and back-up rolls along the line of contact. The resultant effect of these two types of deformation can vary, depending upon the D_r/D_o : X

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28066

S/148/61/000/007/005/012
E193/E380

Ways of increasing

B/L and E_r/E_o ratios, where D_r and D_o are the diameters of the work and back-up rolls, respectively; E_r and E_o are their elastic properties and B and L are the dimensions of the strip. In practice, B/L is fixed but D_r/D_o and E_r/E_o can be varied. Since, however, the diameter of the work rolls can be increased to a limited extent only, a real solution can be found only by constructing the rolls in such a way that the deformation due to flattening is equal in magnitude and opposite in sign to that due to bending. This can be achieved by using back-up rolls whose rigidity varies from a maximum in the middle to a minimum near the edges, such as the composite rolls of the type illustrated in Fig. 2. The roll shown in Fig. 2a consists of a cylindrical steel sleeve fitted onto a barrel-shaped roll; the sleeve fits closely on the middle portion of the roll. The rolls shown in Fig. 2b and Fig. 2c have two concentric sleeves whose cross-section varies from the middle of the rolls outwards. The outer sleeve is made of steel and the inner one of a material with an elastic modulus lower than that of the

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S/148/61/000/007/005/012

E193/E380

Ways of increasing

roll material (cast iron can be used for this purpose). Such rolls can be made either by pouring cast iron in the space between roll and outer sleeve (Fig. 26), or by preheating the sleeves and shrinking them onto the roll (Fig. 28). The shape of the inner sleeve will depend on the diameter and length of the roll. Composite rolls of the above type offer several advantages: 1 - they ensure uniform thickness of the finished product, particularly when long (up to 2 500 mm) rolls are used which have a very large L/D ratio; 2 - setting of the rolls is simplified since uniformly thick sheet can be produced under conditions of widely differing drafts, thus saving time and facilitating automation; 3 - since setting of the rolls is less critical and easier to adjust, higher rolling speeds can be employed; 4 - heavier drafts can be used, provided that a more effective lubricant is used at the same time, so that thinner tinplate can be produced; 5 - the frequency of strip breakage due to incorrect roll setting is greatly reduced, whereby the output of the plant and life of the rolls are increased. ✓
I.M. Pavlov and Ya.S. Gallyay are mentioned in the article.

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Ways of increasing

28066
S/148/61/000/007/005/012
E193/E380

There are 2 digures and 3 Soviet references.

ASSOCIATION: Moskovskiy institut stali (Moscow Institute
of Steel)

SUBMITTED: February 21, 1961

Card 4/5

S/133/61/000/007/010/017
A054/A129

AUTHORS: Polukhin, P. I., Professor, Doctor of Technical Sciences, Golubchik,
R. M., Zel'dovich, L. S., Engineers

TITLE: Determination of the contact surface between metal and rolls during
piercing

PERIODICAL: Stal', no. 7, 1961, 626 - 629

TEXT: The metal pressure on the rolls during diagonal and longitudinal rolling can only be defined analytically when the contact surface between the metal and the roll is known. The calculation given by A. I. Tselikov [Ref. 3: Prokatnyye stany (Roll Stands), Metallurgizdat, 1946] for this contact surface in diagonal rolling does not supply sufficiently accurate data (as a rule lower values are obtained than the actual ones) in spite of applying corrections, because the ovalization of the billet section in the focus of deformation is not taken into consideration. When making allowance for this ovalization during rolling, before piercing and the displacement (s_x) of the section caused by the feed, an analytical formula can be established (Fig. 2) with which it is possible to determine the contact surface in any section of the deformation focus before the billet comes

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S/133/61/000/007/010/017
A054/A129

Determination of the contact surface between...

$$b_{x+s} = \sqrt{\frac{D_{x+s}^2}{4} - \left[\frac{D_{x+s}}{2} - \frac{\xi_{x+s}^2 d_x^2 - d_{x+s}^2}{4(D_n + b)} \right]^2} \quad (10)$$

and for rolling with mandrel (while making allowance for the displacement of the section after meeting the mandrel):

$$b_{x'+s'} = \sqrt{\frac{D_{x'+s'}^2}{4} - \left[\frac{D_{x'+s'}}{2} - \frac{\xi_{x'}^2 d_x^2 + \xi_{x'+s'}^2 d_{x'+s'}^2 - d_{x'}^2 - d_{x'+s'}^2}{4(D_n + b)} \right]^2} \quad (11)$$

(where: $\delta_{x'}$, $\delta_{x'+s'}$ = the diameters of the mandrel in the x' and $x'+s'$ sections).
The correctness of the formulae given was proved by comparing the results with those obtained by Tselikov's method as well as with values actually measured. The calculation principles used for barrel-shaped rolls can also be applied to other types of diagonal rolling, for instance, to disk-shaped or tapered rolls. There are 5 figures, 2 tables and 5 Soviet-bloc references.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

Card 3/4

POLUKHIN, P.I., prof., doktor tekhn.nauk; BAYRAKOV, V.I., kand.tekhn.nauk;
FEDIN, V.P., inzh.

"Changes in the mechanical properties of metals and alloys under the
effect of cold rolling" by V.A. Tret'iakov, K.M. Radchenko. Reviewed by
P.I. Polukhin, V.I. Bayrakov. V.P. Fedin. Stal' 21 no.2:155 F'61.
(MIRA 14:3)

(Rolling (Metalwork))(Tret'iakov, V.A.)(Radchenko, K.M.)

POLUKHIN, P.I.; OSADCHIY, V.Ya.; GOLUBCHIK, R.M.

Use of metalworking lubricants in pipe rolling. Izv. vys. ucheb.
zav.; chern. met. no. 1:100-104 '61. (MIRA 14:2)

1. Moskovskiy institut stali.
(Pipe mills) (Metalworking lubricants)

PODOLKHIN, P.I., doktor tekhn.nauk; YEGOROV, B.V., kand.tekhn.nauk

Investigating nonuniformity of deformation during rolling.
Sbor.Inst.stali no.39:104-112 '60. (MIRA 13:7)

1. Kafedra prokatki Moskovskogo ordena Trudovogo Krasnogo
Znameni instituta instituta stali im. I.V.Stalina.
(Rolling(Metalwork)) (Deformations(Mechanics))

PODOLKIN, P.I., doktor tekhn.nauk; ASTAKHOV, I.G., kand.tekhn.nauk;
SOLOV'YEV, A.I., inzh.; FOMENKO, Yu.Ye., inzh.

Investigating the continuous rolling process of angle steel.
Sbor.Inst.stali no.39:132-152 '60. (MIRA 13:7)

1. Kafedra prokatki Moskovskogo ordena Trudovogo Krasnogo
Anameni instituta stali im. I.V.Stalina.
(Rolling(Metalwork))

POLUKHIN, P.I.; GOLUBCHIK, R.M.

Gripping of the hollow shape during the second piercing process
in rotary rolling with mandrels. Izv. vys. ucheb. zav.; chern.
met. no. 11:66-70 '60. (MIRA 13:12)

1. Moskovskiy institut stali.
(Rolling (Metalwork))

(Pipe mills)

POLUKHIN, P.I.; ZHELEZNOV, Yu.D.; POLUKHIN, V.P.

Optical method of studying strains and deformations of the
rolls on a four-high rolling mill. Izv. vys. ucheb. zav.;
chern. met. no. 11:71-80 '60. (MIRA 13:12)

1. Moskovskiy institut stali.
(Rolls (Iron mills)--Testing)
(Deformations (Mechanics)--Testing)

POLUKHIN, P.I., kand.tekhn.nauk; POPOV, O.S., kand.tekhn.nauk

Investigating deformations in oblique girder grooves. Stal'
20 no. 12:1108-1112 D '60. (MIRA 13:12)

1. Moskovskiy institut stali.
(Rolling mills)

(Deformations (Mechanics))

POLOKHIN, P. I.

MONROE. Institut stail

PHASE I BOOK EXPLOITATION 50V/4782

Proizvodstvo i obrabotka stali i spilavov (Production and Treatment of Steel and Alloys) Moscow, Metallurgizdat, 1960. 462 p.
(Series: Itis: Sbornik, 39) 2,100 copies printed.

[illegible]

PURPOSE: This book is intended for technical personnel in industry with engineering backgrounds and schools of higher education, dealing with open-hearth and electric-furnace steelmaking, metal rolling, physical metallurgy, metallography, and heat treatment. It may card V-10

also be used by students specializing in these fields.

COVERAGE: The book contains results of theoretical and experimental investigations of metallurgical and heat-engineering processes at open-hearth smelting of pig iron outside the blast furnace, the following: of oxides of the carbide-forming metals with solid carbon, the change of content of gases in the bath of the open hearth, the change of content of gases and melting, metallization of scrap, furnace in various periods of melting, metallization of the electric melting of steel, etc. Other articles deal with the nonuniformity of deformation in rolling, the study of the continuous rolling process, the dependence of factors, and shape coefficients in rolling on metallurgical factors. Articles on other problems in the present metallurgical principles and technological physical metallurgy and chemical metallurgy are also included. No personal files of the heat treatment of steel are also included. No personal files are mentioned. References accompany most of the articles. There are 267 references, both Soviet and non-Soviet.

Card 2/10

Radzinski, V. P., Doctor of Technical Sciences [Department of Metallurgy], Use of Oxygen and Complex Decarburizers for Interconversion of the Austenite-Martensite Process of Constructional Steel

Xorlov, V. I. Change of Gas Content in the Open-Hearth Bath During the Decarburization and Holding Period

Quinok M. A., V. A. Kizandiy, Candidate of Technical Sciences
Department of Metallurgical Processes. Performance of the High-
Temperature Ceramic Recuperator

Author: **A. L. Candidate of Technical Sciences** [Department of Metallurgical Purposes]. **Mathematical Analysis of the Melting Process of an Infinite Plate by Transferring the Heat through the Molten Metal**

Pavelin, P. I., Doctor of Technical Sciences, and **B. V. Mavrov**, Candidate of Technical Sciences [Department of Rolling Investigation of Nonuniformity of Deformation in Rolling]. 10

Card 4/10

Deluk H. K., P. 1

PHASE I BOOK EXPLOITATION SOV/4782

Moscow. Institute of Steel

Proizvodstvo i obrabotka stali i splavy (Production and Treatment of Steel and Alloys) Moscow, Metallurgizdat, 1960. 462 p. (Series: Itel: Stomik, 39) 2,100 copies printed.

Ed.: Ye. A. Boroko. Ed. of Publishing House: S. I. Zinger; Tech. Glukov, Professor, Doctor of Technical Sciences; R. N. Grigorash, Decent, Candidate of Technical Sciences; A. A. Zhukovskiy, Professor, Doctor of Technical Sciences; I. N. Kildin, Professor, Doctor of Technical Sciences; A. P. Lyubimov, Professor, Doctor of Technical Sciences; I. M. Pavlov, Corresponding Member, Academy of Sciences USSR; and A. M. Polvatskiy, Professor, Doctor of Technical Sciences.

PURPOSE: This book is intended for technical personnel in industry, scientific institutions and schools of higher education, dealing with open-hearth and electric-arc-furnace steelmaking, metal rolling, physical metallurgy, metallography, and heat-treatment. It may Card 1/10

also be used by students specializing in these fields.

COVERAGE: The book contains results of theoretical and experimental investigation of metallurgical and heat-engineering processes in open-hearth and electric-arc-furnaces. Data are included on the following: desulfurizing of pig iron outside the blast furnace, interaction of oxides of the pig iron with the bath of the open-hearth furnace in various periods of melting; desulfurization of the electric melting of steel, etc. Other articles deal with the nonuniformity of deformation in rolling, the study of the continuous rolling process, the dependence of the friction coefficient on the problems in the pressworking of metals. Articles on physical metallurgy and the theoretical principles and techniques of the heat treatment of steel are also included. No personnel-titles are mentioned; references accompany most of the articles. There are 207 references, both Soviet and non-Soviet.

Card 2/10

Contributors: Ye. A. Boroko, Candidate of Technical Sciences, Ye. M. Kozlovskiy, Engineer, and Ye. I. Shostakovskiy, Engineer, Department of the Physics of Metals and X-ray Analysis, Effects of Strain, Distortions and Aging on the Diffusion Rate in Nickel-based Alloys 381
Polvatskiy, A. M., and O. S. Popov, Engineer [Department of Metal Rolling], Investigation of the Deformation of Metal in Diagonal Rolling at Room Temperatures 400
Zinger, S. I., Candidate of Technical Sciences [Department of Electrochemicals]. Magnetic Viscosity of High-Coefficiency Alloys 422
Zukovskiy, A. P., Doctor of Chemical Sciences, and N. P. Zhuk, and Ye. M. Kozlovskiy, Candidates of Chemical Sciences [Department of Corrosion of Metals]. Behavior of Iron and Steel in Oxidizing Solutions 438
Dmitry, A. M., Doctor of Chemical Sciences, and Ye. Z. Kozlov, Candidates of Chemical Sciences [Department of Analytical Chemistry] Card 9/10

POLUKHIN, P.I., prof., doktor tekhn.nauk, red.; GRINBERG, B.G., dotsent, kand.tekhn.nauk; KANTENIK, S.K., dotsent, kand.tekhn.nauk; ZHADAN, V.T., dotsent, kand.tekhn.nauk; VASIL'YEV, D.I., dotsent, kand.tekhn.nauk; LEBEDEV, B.G., dotsent, kand.tekhn.nauk, nauchnyy red.; LAKHTIN, Yu.M., prof., doktor tekhn.nauk, retsenzent; KITAYTSEV, V.A., dotsent, kand.tekhn.nauk, retsenzent; RAZYGRAYEV, A.M., inzh., retsenzent; YUDINA, L.A., red.izd-va; RYAZANOV, P.Ye., tekhn.red.

[Technology of metals] Tekhnologiya metallov. Pod obshchei red. P.I.Polukhina. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.materialam, 1960. 460 p.

(MIRA 14:3)

1. Kafedra metallovedeniya Moskovskogo avtomobil'no-dorozhnogo instituta (for Lakhtin, Kitaytsev, Razygrayev).
(Metals) (Metalwork)

Polukhin, P. I.

137-1958-3-5030

Translations from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 82 (USSR)

AUTHORS: Polukhin, P. I., Zhadan, V. T.

TITLE: An Investigation of the Cross-sectional Distribution of the Deformation of Metal in a Strip Rolled in a Sectional Caliber
(Issledovaniye raspredeleniya deformatsii metalla po secheniyu polosy, prokatamoy v razreznom kalibre)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 36, pp 228-245

ABSTRACT: Investigations were carried out in order to establish how the cross-sectional distribution of the deformation (D) in a metal strip rolled in a sectional caliber is affected by the crest (C) angle and by the extent of the reduction and expansion (E), as well as to determine the consumption of energy and establish the pressures exerted by the metal against the rolls. The distribution of D was determined from changes in the thread pitch of screws which were screwed into the metal. The value of the crest angle varied between 80° and 45°. Rolling operations were performed on a 360 rolling mill, at a temperature of 1200°. Templets cut from the rolled strips were ground, polished and etched in a solution of HNO₃. The data obtained describe the depthwise

Card 1/2

137-1958-3-5030

An Investigation of the Cross-sectional Distribution of the Deformation (cont.)

distribution of D in regions of low and of high degree of reduction. Regions adjacent to the crest experience the greatest D . The minimum D is observed approximately at the midpoint of the height of the neck. Maximal transverse D is observed in regions adjacent to the C , while minimum D is found in the central portion of the neck. Measurements of the transverse D serve to determine the boundaries of regions of constrained E and constrained constriction, as well as the D pattern and the pattern of the internal stress conditions; the same measurements also make it possible to trace the flow of metal in the calibers. The central region of the templet constitutes an area of constrained E , whereas constrained constriction in the transverse and vertical directions is observed on the edges. From the data of the transverse, longitudinal, and vertical distribution of D it may be deduced that the D of metal, forced through a sectional caliber, is symmetrical with respect to the vertical axis and unsymmetrical with respect to the horizontal axis.

Yu. F.

Card 2/2

SOV/137-58-11-22330

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 69 (USSR)

AUTHORS: Polukhin, P. I., Yegorov, B. V.

TITLE: A Contribution to the Determination of Average Unit Pressure in Rolling With Nonuniform Reductions (K opredeleniyu srednego udel'nogo davleniya pri prokatke s neravnomernymi obzhatiyami)

PERIODICAL: Sb. Mosk. in-t stali, 1958, Vol 38, pp 298-306

ABSTRACT: A presentation is made of the results of an investigation of the effect of reduction not uniform across the width of the strip upon the pressure between the rolls and the metal (Me) and its dependence upon the ratio of the area F_1 of the more highly reduced portion of the cross section to the entire area of the strip F prior to rolling, and the ratio of the length of the contact area l to its width b prior to rolling. X and I elements were rolled. The pressure measurements were by carbon resistance gauges. It was found that the curves showing the ratio of deformation-resistance to the F_1/F and l/b ratios fall into the family of hyperbolas and that resistance to deformation drops as these ratios become larger.

M. Z.

Card 1/1

137-58-6- 12177

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 144 (USSR)

AUTHORS: Polukhin, P.I., Makeyev, D.I., Fedosov, N.M.

TITLE: Methods of Grooving for a Novel Type of Rail-support Plate
(Kalibrovka rel'sovoy podkladki novogo tipa)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 36, pp 394-413

ABSTRACT: Two methods for grooving (G) of rolls employed in rolling a novel profile of rail support plates intended for heavy rails (67-75 kg/m) were developed and tested. The G methods gave favorable results when tested under conditions closely approaching actual operating conditions. It is established that rolling of the new rail support plates can be accomplished on rolling mills with rolls ranging from 500 mm to 650 mm in diameter. Of the two methods for G, the method in which the upper flanges are bent back offers greater advantages, because it permits to achieve shapes of smaller cross section in fewer passes. The employment of the first or second method of G, however, depends upon the specific conditions of rolling. The results of the investigations performed may be utilized in adapting technological procedures for rolling of the new profile of rail support plates. 1. Rolling mills--Design 2. Rolling mills--Test results 3. Metals
--test results S.G

Card 1/1

SOV/137-57-11-21291

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 95 (USSR)

AUTHORS: Polukhin, P.I., Astakhov, I.G.

TITLE: Special Features of Rolling and Grooving for Lightened and Thin-walled Beams (Osobennosti prokatki i kalibrovki oblegchennykh i tonkostennykh balok)

PERIODICAL: V sb.: Ratsionalizatsiya profiley prokata. Moscow, Profizdat, 1956, pp 126-151

ABSTRACT: An examination is made of the grooving and temperature conditions for the rolling (R) of lightened beams (LB), and of the elastic deformation of the mill in the R thereof. In order to prevent rapid drop in strip temperature, LB are R on existing mills with larger reduction ratios and drafts than in the R of standard beams of the same sizes. The conditions of deformation in the flange passes (P) depend upon the slope of the inside edges of the flanges. Analysis of the forces shows that as the slope of the inside flange edges diminishes, resistance in a closed P rises more rapidly than in an open one. From this it follows that in designating the reduction of the flanges, the chief work in thinning them out is assigned to open P. In

Card 1/2

SOV/137-57-11-21291

Special Features of Rolling and Grooving (cont.)

developing a new assortment of LB with thinner webs and flanges, no significant decrease in the slope of the inner edges of the flanges should be made, since this would create significant difficulties in the R process and impair the fundamental engineering and economic performance indices of LB production. The roll grooving for R of Nr-24 LB at the Nizhniy Tagil Plant and of Nr-36 LB at the Azovstal' Plant is presented. In the rolling of both lightened and normal B, diagonal grooving of the rolls is to be recommended. This has a number of advantages over the usual kind. Work to test the new method of B rolling, with dual-collar roughing grooves, has been done in cooperation with the Yenakiyevo Plant. Reduction (crushing) of the central thickening of the web may be done either in closed grooves without significant spread, or in open ones with forced spread. The utilization of dual-collar slitting grooves makes it possible to increase the draft ratio per pass and considerably to reduce the total number of passes in the rolling of beams.

B.Ye.

Card 2/2

AUTHORS: Polukhin, P. I., Yegorov, B. V. SOV/163-58-1-24/53

TITLE: The Investigation of the Forward Flow in Rolling With Non-Uniform Heating (Issledovaniye operezheniya pri prokatke s neravnomernym obzhatiyem)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya. 1958. Nr 1. pp 127-132 (USSR)

ABSTRACT: In the present paper the results of investigations on the forward flow in rolling at non-uniform heating are described. In the determination of the forward flow S_h difficulties arise in the direct measuring of the output rate of the metal from the rolling. The oscillograms are taken for the determination of the output rate. These oscillograms show the following relationship: $V_h = \frac{L}{t}$. The form of the projection of the deformation characterized by the ratio $\frac{1}{b}$ exerts considerable influence on the magnitude of the forward flow as well as on the backward flow. When the ratio $\frac{1}{b}$ is increased at constant values of F_1/F and constant

Card 1/2

SOV/163-58-1-24/53

The Investigation of the Forward Flow in Rolling With Non-Uniform Heating

deformation an intense development of the transverse deformation as well as a decrease of the forward flow and of the backward flow occurs. The influence of the factor of non-uniform deformation on the character of the decrease of the forward flow and the backward flow shows that at values of $F_1/F = 1,0 - 0,65$ the forward flow and the backward flow slowly decrease, and at $F_1/F = 0,65$ the decrease takes place more rapidly. There are 2 figures, 1 table, and 8 references, 8 of which are Soviet.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: October 1, 1957

Card 2/2

25(1,2)

PHASE I BOOK EXPLOITATION

SOV/4549

Polukhin, Petr Ivanovich, Naum Maksimovich Fedosov, Andrey Andreyevich Korolev, and
Yuriy Mikhaylovich Matveyev

Prokatnoye proizvodstvo (Manufacture of Rolled Products) Moscow, Metallurgizdat,
1960. 966 p. Errata slip inserted. 10,500 copies printed.

Ed.: N.P. Gromov; Ed. of Publishing House: V.M. Gorobinchenko; Tech. Ed.: L.V.
Dobuzhinskaya.

PURPOSE: This textbook is intended for students of schools of higher education
for use in the course "Pressworking of Metals." It will also be helpful to
technical personnel in the metallurgical and machine-building industries.

COVERAGE: The book deals with processing techniques, roll pass design, and equip-
ment of mills used in the production of various rolled products. The authors give
methods for designing basic parameters of rolling processes and rolling equipment.
The following personalities are mentioned: G.K. Laur, Deputy Chief Engineer of the
Magnitogorskiy metallurgicheskiy kombinat imeni I.V. Stalina (Magnitogorsk Metal-
lurgical Combine imeni I.V. Stalin); N.P. Gromov, Docent, Candidate of Technical
Sciences (who reviewed the manuscript); Ya. L. Vatin; and the members of the

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Manufacture of Rolled Products

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Department of Rolling of the Moskovskiy institut stali imeni I.V. Stalina (Moscow Institute of Steel imeni I.V. Stalin). Also cited are textbooks on rolling used by students in schools of higher technical education. There are 161 references, all Soviet.

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20253

1.1300 also 1496, 1045, 1454

S/148/60/000/011/007/015
A161/A030

AUTHORS: Polukhin, P. I.; Zheleznov, Yu. D.; Polukhin, B.P.

TITLE: Optical investigation of stresses and strains in four-high mill rolls

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 11, 1960, 71 - 80

TEXT: The purpose of the investigation was the determination of combined elastic deformation in the work and support rolls and the verification of existing theories on which the various existing rolls calculating methods are based, with a view to raising the accuracy requirements of the evenness of the cold rolled thin sheet thickness. The experiments were carried out in the stress research laboratory of the Kafedra ispol'zovaniya vodnoy energii Moskovskogo inzhenerno-stroitel'nogo instituta (Chair of Water Power Utilization of the Moscow Construction Engineering Institute). The conclusions made in experiments are not final. It is mentioned that stresses through the rolls, and elastic deformation components

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Optical investigation of stresses

caused by them, had up to now not been studied in experiments for multi-roll mills. A special steel stand had been designed and placed into a thermostat; the rolls were made of optically active 3-40-M' (E-40-M) material (Ref. 4, N. I. Prigorovskiy, N. A. Kupryakova, M. F. Bokshiteyn. There was new optically active material on the epoxy resin base. Byulleten' VINITI No. 37, 1957). The rolls were a precise copy of the mill rolls in 1 : 10 scale. The rolling process was simulated without torque, and in static instead of dynamic equilibrium of forces. The stresses were "frozen" in slowly cooled rolls after loading at a certain temperature. A BPU-IMASH (BPU-IMASH) polarizer was used for photographing the isochromes, and a KCP-5 (KSP-5) polarizer with a Krasnov compensator for accurate determination of the isoclines and isochromes in spots on the cuts where their order or gradient was too low for the BPU-IMASH. More attention has been paid to stress and strain in the axial cross section of the support roll, for its rigidity determines the rigidity of the entire four-high system. The isochromes pattern (Figure 2) and stress epures show that both the work and support roll only very faintly resemble a bent beam. It was stated that $c_{x_{max}}$ calculated with the conventional formulae, derived accord-

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Optical investigation of stresses

ing to the materials strength theory, was seven times higher than the stress found in experiments. The isostates pattern clearly proved that the entire mass of the support roll works as a wall-beam, and this means that the conventional method of calculating the sag of the support rolls is wrong. The Tselikov formulae gave a sag of 0.047 mm, the Larke formulae 0.056 mm, and the experiment data 0.082 mm. The real pressure epure along the contact line (Figure 5) once more confirmed that the work roll works as a beam on an elastic base, and the trunnions on the bearings have a very high effect on the flattening resistance at the edges of the support roll barrel. This observation renders the Grudev's method of the resilience factor determination doubtful. The longitudinal flattening obviously has an inverse curvature to the sag strain curve of the support roll, and consequently the effect of sag is partly compensated by the effect of longitudinal flattening. But such a combination is obviously only possible at a certain relation of the rolls and the strip dimensions, and three cases are possible: 1) In rolling narrow strip with sufficient resilience - the flattening epure will have the same curvature as the sag; 2) In rolling a sufficiently wide strip, or with rigid work rolls - the flattening may be straight-lined and have no effect on the difference of the displacement at the mid

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Optical investigation of stresses

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and the ends of the barrel; 3) In rolling very wide strip with very rigid work rolls - the flattening curvature will be inverse to the sag. It may be concluded that there exists a definite ratio between the strip width and the roll barrel length which will produce the maximum gage unevenness in constant compression. The stresses in contact are obviously higher on the support rolls than on the work rolls, and the support rolls surface must be more susceptible to fatigue failure (which is observed in practice). Conclusions: 1) The photoelastic method permits quantitative and qualitative evaluation of separate deformation components in the joint deformation of work and support rolls, and in finding the optimum roll parameters. 2) It is proven that the work roll works like a beam on elastic base, and the support roll trunnions have a very strong effect on the resilience of the work roll barrel edges. At $\frac{L}{D}$ ratio near 1, the support roll differs significantly from the bent beam and consequently its sag will be more correctly calculated as a wall-beam, or by the common methods, with certain corrections, however. 3) The conventional calculation of rolls for contact strength in accordance with the Hertz theory does not meet the peculiarities

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Optical investigation of stresses

of the interaction of the rolls in the contact zone. The maximum tangential stresses in the support roll highly exceed the maximum tangential stresses in the work roll. Preventive measures against fatigue failure are equally necessary for the surface of work and support rolls (relaxation, rational work periods between rolls replacements, etc.). 4) It is proven that the pressure between the work and support rolls is not evenly distributed, and this must be considered in calculations. There are 7 figures and 7 Soviet references.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

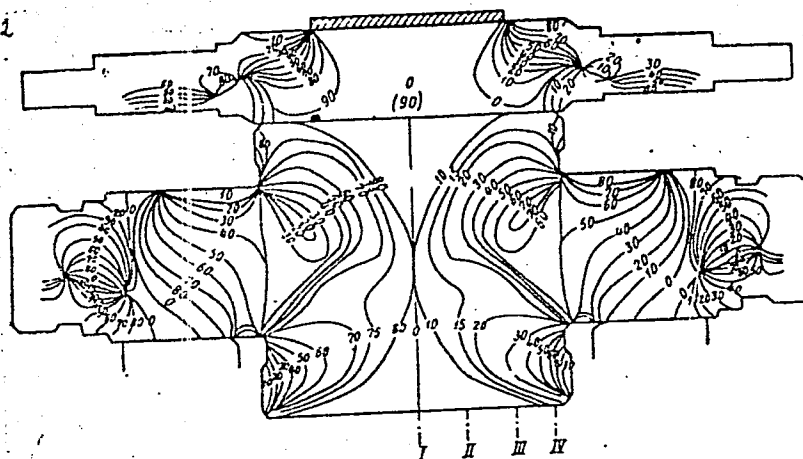
SUBMITTED: September 2, 1960

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Optical investigation of stresses.

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Figure 2: 1

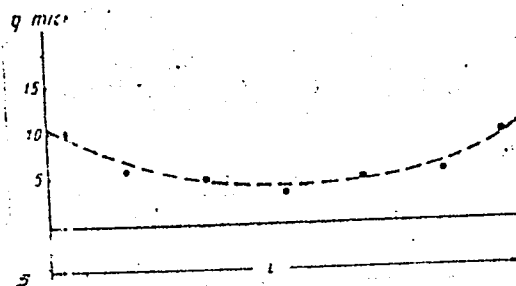


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Figure 5:



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S/148/62/000/006/002/005
E081/E435

AUTHORS: Polukhin, P.I., Gun, G.Ya., Masterov, V.A.,
Knyshev, Yu.V.

TITLE: Calculation of the stresses and strains during the
pressing of layered bodies

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya
metallurgiya, no.6, 1962, 71-75

TEXT: The problem considered is the pressing out between dies of
a material consisting of n layers of different substances (Fig.1)
taking into account hardening, friction between the layers,
and shear forces in the external zone. The work corresponding to
the two latter effects is evaluated and, using the method of
undetermined multipliers, formulae are derived which enable the
specific pressure and the state of strain in the material to be
calculated. A nomographic method of accomplishing the
calculations is outlined. There are 2 figures.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: January 10, 1962

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41468

S/153/62/005/004/006/006
E075/E436

10.9/100

AUTHORS: Shchegolevskaya, N.A., Sokolov, S.I., Polukhin, P.I.,
Vorontsov, V.K.

TITLE: On the polymeric coatings on metals for the study of
plastic deformations by the optical method

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i
khimicheskaya tekhnologiya, v.5, no.4, 1962, 647-652

TEXT: A possibility was investigated of obtaining optically
sensitive layers, based on epoxy resins and polyesters, suitable
for the investigation of sufficiently large plastic deformations
of metals. It was found that the coatings with different maximum
deformations, optical sensitivity and adhesiveness can be produced
from epoxy resins and various polyesters of dibasic acids and
glycols, polyesteracrylates and dibutylphthalate as plasticizers.
They could also be produced by changing the conditions of curing,
both hot and cold curing processes being suitable. For hot
curing, maleic and phthalic anhydrides are used as curing agents;
for cold curing, polyethylenepolyamines. A method of gradual
heating was employed to produce the coatings without any residual
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POLUKHIN, P.I., prof., doktor tekhn. nauk; GOROBINGHENKO, V.M., inzh.

New method of investigating high speed rolling. Sbor. Inst. stali
no.38:282-297 '58. (MIRA 11:8)

1. Kafedra prokatki Moskovskogo instituta stali im. Stalina.
(Rolling (Metalwork))

POLUKHIN, P.I.; YEGOROV, B.V.

Investigating advance during nonuniform cogging. Nauch. dokl.
vys. shkoly; met. no.1:127-132 '58. (MIRA 11:9)

1. Moskovskiy institut stali.
(Rolling (Metalwork)) (Deformations (Mechanics))

POIUKHIN, P.I., prof., doktor tekhn. nauk; GOROBINCHENKO, V.M., inzh.

Determining the average specific pressure in nonuniform rolling.
Sbor. Inst. stali no.38:298-306 '58. (MIRA 11:8)

1. Kafedra prokatki Moskovskogo instituta stali im. Stalina.
(Rolling (Metalwork)--Testing)

POLUKHIN, P.I.

AUTHOR: Bakhtinov, B.P. and Zhadan, V.T., Candidates of
Technical Sciences 133-58-3-17/29

TITLE: Review of P.I. Polukhin's book: Prokatka i kalibrovka
dvutavrovyykh balok (I-Beam Rolling and Groove Design)

PERIODICAL: Stal', 1958, Nr 3, pp 242 - 243 (USSR)

ABSTRACT: Review of subject book which was published by
Metallurgizdat in 1956.

AVAILABLE: Library of Congress

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POLUKHIN, P.I.

Ploukhin, P.I. "Analysis of spreading during rolling," report (Mosk. in-t
stali im. Stalina) 26, 1948, p. 20-37 - Bibliog: 6 items

SO: U-2888, Letopis Zhurnal'nykh Staty, No. 1, 1949

POLUKHIN, P.I.

3-9-3/31

AUTHOR: ~~Polukhin~~, P.I., Professor, Deputy Chairman of the Scientific
Technical Council of the USSR Ministry of Higher Education

TITLE: An Important Stimulus of Scientific Activity (Vazhnyy stimul
nauchnoy deyatel'nosti)

PERIODICAL: Vestnik Vysshey Shkoly, 1957, # 9, pp 11-13 (USSR)

ABSTRACT: The author states that the higher educational institutions
have great possibilities for research work, possessing a
qualified teaching staff and talented youth from senior and
post graduate courses.

In accordance with instructions of the Communist Party,
the Ministry of Higher Education is proceeding with an
important task. More than 20 thousand themes of scientific
research are elaborated every year in the vuzes of this
Ministry. In 1956, more than 9,000 scientific research works
were carried out. More than 300 important findings were
transmitted to the national economy. Research last year was
done at the Kazan', Moscow and Gor'kiy universities on the
problems of synthesis and the quality of electromagnetic
amalgamations, on the theory of catalysis, on the designing

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An Important Stimulus of Scientific Activity

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of electronic and computing machines. Scientists of these schools and others contributed to research in the field of the theory of probability, mathematical statistics, the theory of stability, the theory of casing and plasticity, of mathematical physics, nuclear spectroscopy, radio-physics, etc. The Ministry of Higher Education realized effective measures for the improvement of scientific and educational work in the vuzes in student independent work, the organization of new laboratories, the systematical convening of scientific conferences, etc.

The success of scientific work depends on the exchange of experiences in scientific research. For this purpose the Ministry will publish "Nauchnyye doklady" (Scientific Reports) on 16 branches of science and engineering and "Izvestiya Ministerstva vysshego obrazovaniya SSSR" (Information of the Ministry of Higher Education, USSR) dealing with 22 branches of engineering and science. The "Nauchnyye doklady" will be published by the "Sovetskaya nauka" publishing house, in Moscow. "Izvestiya" will be published by the most important higher educational institutions in various areas of the country: Sverdlovsk, Tomsk, Stalino, Kazan', Gor'kiy, Minsk, Kiyev, Ivanov, etc. The edition of these two reviews will enable

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An Important Stimulus of Scientific Activity

3-9-3/31

teachers and professors of vuzes to organize the exchange of scientific information on many subjects. Short notices on the latest and most important results of new research in the field of mathematics, natural science, engineering and social science, will appear in the "Nauchnyye doklady". "Izvestiya" will publish articles showing the results of vuz scientific research; papers, theses, experience at home and abroad, introduction of new methods, reports on conferences. Descriptions of inventions will also be dealt with in this periodical.

Publishing material will be submitted to the chairs, which will proceed with a careful selection, as the printing material published in the two periodicals will characterize the scientific level of vuzes. A systematic review and critique will be accomplished by industrial and scientific collaborators.

ASSOCIATION: Nauchno-tekhnicheskii sovet Ministerstva vysshego obrazovaniya SSSR (Scientific Technical Council of the USSR Ministry of Higher Education)

AVAILABLE: Library of Congress

Card 3/3

137-58-4-7068

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 110 (USSR)

AUTHORS: Polukhin, P. I., Zhadan, V. T.

TITLE: An Investigation of the Deformation of Metal in Flanging Passes
(Issledovaniye deformatsii metalla vo flantsevykh kalibrakh)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 36, pp 196-227

ABSTRACT: An investigation of the filling of slitting grooved rolls in the rolling of flanged shapes in accordance with changes in the angle of the slitting collar, the degree of reduction, the spread (S), and the condition of the surface of the pass, has been made. The effect of these factors on the power consumption and the pressure of the metal on the rolls is clarified. The investigation was conducted in the rolling (R) of a beam 100 mm high on a 360 mm mill in four slitting passes, in which the collar angles (CA) were 80, 70, 60 and 45°. R came to 43-59 percent reduction depending on the height of the initial billet. The effect of S was investigated in specimens of various initial width. The pressure of the metal on the rolls was measured by hydraulic capsules with carbon elements. The area of the horizontal projection of the contact surface was determined by graphic and analytic methods. The temperature

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137-58-4-7068

An Investigation of the Deformation of Metal in Flanging Passes

at the start of R was 1200°C. It follows from the results obtained that CA is increased from 45 to 70°, the height of the open and closed flanges (F) diminishes. As CA increases, reduction in cross section with height undergoes a smaller increase than does the mean reduction factor. In R without S, as CA rises from 45 to 70°, there is an increasing asymmetry of deformation, which is a consequence of the more intensive reduction in the height of the closed F. When R is accompanied by S, this relationship is less significant. As relative reduction on the collar increases from 43 to 59 percent, the height of open and closed F increases, and the zone of enforced S of the midsection of the cross section of the strip also increases, resulting in an increase in lateral pressure and friction. In R in the absence of S conditions are more favorable for open F and less favorable for closed F. Variation in S changes the force requirement, and this makes for different degrees of filling of the open and closed F. As S increases, the asymmetry of deformation of the metal diminishes. As CA increases, unit pressure diminishes, but to an insignificant degree, while unit power consumption increases considerably. When reduction on the collar is increased to 43-56 percent, unit pressure increases by 8-10.5 kg/mm², and unit power consumption from 0.7 to 1.8 kwh/t. An increase in S results in a decrease in unit pressure.

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Yu. F.

1. Rolling mills 2. Metals--Deformation--Test methods 3. Metals--Deformation--Test results

137-58-4-6994

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 98 (USSR)

AUTHORS: Polukhin, P. I., Yegorov, B. V.

TITLE: An Investigation of the Ratio of Transverse to Longitudinal Deformations in Rolling With Nonuniform Reduction (Issledovaniye zavisimosti mezhdu poperechnoy i prodol'noy deformatsiyami pri prokatke s neravnomernymi obzhatiyami)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 36, pp 320-353

ABSTRACT: The effect of the major parameters of the rolling process upon the ratio between lateral and longitudinal deformations (D) and on the mean reduction ratio factor (MRF) is established. An empirical expression for the dependence of the MRF upon the non-uniformity factor of the D and upon the contours of the locus of D is derived. An analysis of formulas for determination of MRF is provided. A nomogram is constructed to speed calculations by means of the suggested equation.

B. Ye.

1. Rolling mills operation--Mathematical analysis

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137-58-4-7007

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 101 (USSR)

AUTHORS: Polukhin, P. I., Astakhov, I. G.

TITLE: Rolling a Light-weight Type of Beam (Prokatka balok oblegchenogo tipa)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 36, pp 354-370

ABSTRACT: Analysis of passes for rolling standard H-beams serves as the basis for development of grooving for rolling light-weight beams (LB) Nrs 24, 30, 36 and 55. The rolling of LB was done at the rail-and-beam mills of the Novo-Tagal'skiy Yenakiyevo Plants and at the Azovstal' Plant. In view of the fact that temperature conditions during the rolling play a major role in the rolling of beams, temperature measurements were taken during the rolling of LB. The results obtained indicate that modern rail-and-beam mills make it possible to roll LB in the same number of passes as with ordinary beams, without any danger of excessively reduced temperature in the strip at the end of the rolling process. The measurement of elastic deformation of the finishing stand showed that, if the proper temperature regime is maintained and a steady rolling sequence is sustained, the degree of elastic deformation does not impair the rolling of LB.

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Yu. F.

1. Rolling mills 2. Beams--Rolling--Temperature factors

PELOKHIN, P.I.

2573. Peletkin, P. I. Controlled transverse deformation in rolling. Trudy Sibirsk. metallurg. in-ta no. 1, 40-59, 1954; Ref. Zh. Mekh. 1956, Rev. no. 1631.

The deformation is investigated of a rolled strip with the roll pressure applied at the middle of the width. The ratio between longitudinal and transverse deformation is influenced by the relationship between the length of the area of deformation l to its width b , and the ratio of the transverse area of the roll elements F_r to the total cross-sectional area F . The influence of these factors in different combination on samples of different form is investigated. With decreasing ratio F_r/F (l/b being constant), the transverse deformation increases, and the longitudinal deformation decreases.

In a second series of test samples the compressed areas on the edges of the sample (double-tee with thickened web) are additionally investigated. The influence of l/l_0 and F_r/F is the same as in the preceding cases.

The optimum relationships between these factors are determined for obtaining the maximum increase in width.
Courtesy of Referativnyi Zhurnal V. G. Osipov, USSR
Translation, courtesy Ministry of Supply, England

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SOV-3-58-8-11/26

AUTHOR: Polukhin, P.I., Member of the Board, USSR Ministry of
Higher Education

TITLE: The Vuzes Seek Ways for a Closer Approach of the Teaching
Process to Production (Vuzy ishchut puti sblizheniya uche-
bnogo processa s proizvodstvom)

PERIODICAL: Vestnik vsshey shkoly, 1958, Nr 8, pp 48 - 52 (USSR)

ABSTRACT: Much attention is being paid to the practical training of
prospective engineers. The student spends a total of 20
to 24 weeks at plants and other enterprises, but there are
substantial deficiencies in conducting the practical train-
ing, which result in lack of skill and efficiency. This is
due to insufficient time being allotted for the training
and to the unsatisfactory organization of the work. The
problem of a closer tie between training at the engineer-
ing vuzes and industry can be solved by several methods.
For some vuzes it may be expedient to combine the instruc-
tion with productional work, beginning with the junior
courses; for others - with the senior courses; in some
cases a more flexible combination of concurrent school
training and practical work may be possible. This pro-
blem is simply and easily solved by vuzes located in the

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The Vuzes Seek Ways for a Closer Approach of the Teaching Process to Production

vicinity of enterprises and closely connected to them. The author describes how the Kemerovskiy gornyy institut (Kemerovo Mining Institute), located in the center of the Kuzbass, is coping with this problem, and gives details of its new teaching plan. A similar plan has been worked out by the Sibirskiy metallurgicheskii institut (Siberian Metallurgical Institute) which is close to the Kuznetskiy metallurgicheskii kombinat (Kuznetsk Metallurgical Combine) and other big enterprises, mines and building trusts. The author pictures the important scientific research work that is being done by professors and instructors for industry. The fact that about 900 factory and mining workers are attending the institute's evening faculty will show to what extent the Siberian Metallurgical Institute is connected with industry. The Magnitogorskiy gornometallurgicheskii institut (Magnitogorsk Mining-Metallurgical Institute), organically bound to the Magnitogorskiy metallurgicheskii kombinat (Magnitogorsk Metallurgical Combine), is planning a still wider conjunction of training and factory work. The new curriculum provides for

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POLUKHIN, P.I., doktor tekhn.nauk, prof.; POTAPOV, I.N., inzh.; FINAGIN, P.M.,
~~inzh.~~

Adjustment of drives for pipe-rolling mills securing a steady
rotation of rolls. Vest.mashinostr. 43 no.9:18-21 S '63.
(MIRA 16:10)

POIUKHIN, P.I., prof., doktor tekhn. nauk; ZHADAN, V.T., kand. tekhn. nauk.

Investigation of the deformation distribution in the section of
strip rolled in slitting passes. Sbor. Inst. stali no.36:228-245
'57. (MIRA 10:12)

1. Kafedra prokatki Moskovskogo instituta stali im. Stalina.
(Rolling (Metalwork)) (Deformations (Mechanics))